

Appl. No. : 10/811,784
Filed : March 29, 2004

AMENDMENTS TO THE CLAIMS

Amendments to the claims are indicated in the following listing of claims, which will replace all prior listings of the claims.

1. (Currently Amended) A bicycle damper, comprising:
 - a first tube ~~defining a longitudinal first axis;~~
 - a piston rod supporting a piston in sealed, sliding engagement with said first tube, said piston and said first tube defining a first fluid chamber;
 - a second tube defining a longitudinal axis and a second fluid chamber; ~~second axis, said second axis being non-parallel with respect to said first axis when said piston rod and said first and second tubes are operably mounted to an associated bicycle, said second tube defining a second fluid chamber;~~
 - a fluid passage connecting said first fluid chamber and said second fluid chamber, wherein a damping fluid moves between said first fluid chamber and said second fluid chamber in response to relative movement of said piston rod and said first tube in a compression direction of said damper;
 - an inertia valve comprising an inertia mass movable between a first position and a second position, said inertial mass being within said second tube and not within said first fluid chamber, wherein said inertia mass does not surround said first tube, said inertial mass configured to move axially relative to said second tube in generally a same direction as movement of said piston in said compression direction, wherein said inertia mass blocks a flow of fluid in said compression direction through said fluid passage in said first position and permits a flow of fluid in said compression direction through said fluid passage in said second position.
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Original) The damper of Claim 1, wherein said first tube and said second tube are coupled into a single unit by a connector, a portion of said fluid passage being within said connector.

6. (Currently Amended) A bicycle damper, comprising:

a first tube ~~defining a first axis~~, said first tube configured to be coupled to one of a frame and a wheel support of an associated bicycle;

a piston rod supporting a piston in sealed, sliding engagement with said first tube, said piston and said first tube defining a first fluid chamber, said piston rod configured to be coupled to the other of the frame and wheel support of an associated bicycle;

a second tube defining a longitudinal axis and a second fluid chamber; ~~second axis, said second axis being non-parallel with respect to said first axis when said piston rod and said first and second tubes are operably mounted to an associated bicycle, said second tube defining a second fluid chamber;~~

a fluid passage connecting said first fluid chamber and said second fluid chamber, wherein a damping fluid moves between said first fluid chamber and said second fluid chamber in response to relative movement of said piston rod and said first tube in a compression direction of said damper;

an inertia valve comprising an inertia mass movable between a first position and a second position, said inertial mass being within said second tube and not within said first fluid chamber, wherein said inertia mass does not surround said first tube, said inertial mass configured to move axially relative to said second tube in generally a same direction as movement of said piston in said compression direction, wherein ~~said a flow of fluid a flow of fluid in a compression direction of said damper~~ is prevented through said fluid passage in said first position of said inertia ~~valve~~ mass and a flow of fluid in a compression direction of said damper through said fluid passage is permitted in said second position of said inertia ~~valve~~ mass, and wherein said inertia ~~valve~~ mass is configured to move from said first position to said second position in response to a terrain-induced force above a predetermined threshold applied to said wheel support along said ~~second~~ longitudinal axis.

7. (Canceled)

8. (Canceled)

9. (Canceled)

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10. (Original) The damper of Claim 6, wherein said first tube and said second tube are coupled into a single unit by a connector, a portion of said fluid passage being within said connector.

11. (New) A suspension assembly for a bicycle, comprising:

a primary tube;

a piston rod supporting a piston and being capable of motion relative to said primary tube in a compression direction of said suspension assembly, said piston and said primary tube at least partially defining a first fluid chamber, wherein one of said primary tube and said piston rod is configured to be connected to a wheel portion of a bicycle and the other of said primary tube and said piston rod is configured to be connected to a frame portion of a bicycle;

a secondary tube at least partially defining a second fluid chamber, wherein said first fluid chamber and said second fluid chamber are filled with a liquid and wherein liquid flows from said first fluid chamber to said second fluid chamber in response to relative motion of said piston rod and said primary tube in said compression direction;

an inertial valve comprising an inertial mass, said inertial mass being within said secondary tube and not within said first fluid chamber, wherein said inertia mass does not surround said primary tube, said inertial mass configured to move axially relative to said secondary tube in generally a same direction as movement of said piston in response to a terrain-induced force tending to move said suspension assembly in said compression direction, said inertial valve having a first position and a second position, said inertial valve biased into said first position blocking a flow of liquid from said first fluid chamber to said second fluid chamber in said compression direction, said inertial valve permitting a flow of liquid from said first fluid chamber to said second fluid chamber in said second position in said compression direction.

12. (New) The bicycle suspension system of Claim 11, additionally comprising a bleed valve configured to permit a flow of fluid from within said primary tube to said second fluid chamber when said inertial valve is in said first position.

13. (New) The bicycle suspension system of Claim 12, wherein said bleed valve is configured to permit said flow of fluid from said first fluid chamber to said second chamber.

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14. (New) The bicycle suspension system of Claim 11, additionally comprising a floating piston within said secondary tube and separating a gas space of said secondary tube from a damping fluid space of said secondary tube.

15. (New) The bicycle suspension system of Claim 11, additionally comprising a stop surface configured to prevent said inertia mass from moving beyond said first position of said inertial valve in a direction opposite said second position.

16. (New) A suspension assembly for a bicycle, comprising:

a first tube;

a second tube;

a piston rod supporting a piston and being capable of motion relative to said first tube in a compression direction of said suspension assembly, wherein one of said first tube and said piston rod is configured to be connected to a wheel portion of a bicycle and the other of said first tube and said piston rod is configured to be connected to a frame portion of a bicycle;

a first fluid chamber and a second fluid chamber, wherein said first fluid chamber and said second fluid chamber are filled with oil and wherein oil flows from said first fluid chamber to said second fluid chamber in response to relative motion of said piston rod and said first tube in said compression direction;

an inertial valve comprising an inertial mass, said inertial mass being within said second tube and not within said first fluid chamber, wherein said inertia mass does not surround said first tube, said inertial mass configured to move axially relative to said second tube in generally a same direction as movement of said piston in response to a terrain-induced force tending to move said suspension assembly in said compression direction, said inertial valve having a first position and a second position, said inertial valve biased into said first position blocking a flow of oil from said first fluid chamber to said second fluid chamber in said first position in said compression direction, said inertial valve permitting a flow of oil from said first fluid chamber to said second fluid chamber in said second position in said compression direction.

17. (New) The bicycle suspension system of Claim 16, additionally comprising a bleed valve configured to permit a flow of fluid from within said first tube to said second fluid chamber when said inertial valve is in said first position.

18. (New) The bicycle suspension system of Claim 17, wherein said bleed valve is configured to permit said flow of fluid from said first fluid chamber to said second fluid chamber.

19. (New) The bicycle suspension system of Claim 16, additionally comprising a floating piston within said second tube and separating a gas space of said second tube from a damping fluid space of said second tube.

20. (New) The bicycle suspension system of Claim 16, additionally comprising a stop surface configured to prevent said inertia mass from moving beyond said first position of said inertial valve in a direction opposite said second position.

21. (New) A bicycle damper, comprising:

a tube defining an axis;

a piston rod supporting a piston in sealed, sliding engagement with said tube, said piston and said tube defining a compression fluid chamber and a rebound fluid chamber;

a reservoir fluid chamber defined by said damper:

a fluid passage connecting said compression fluid chamber and said reservoir fluid chamber, wherein a damping fluid moves between said compression fluid chamber and said reservoir fluid chamber in response to movement of said piston rod relative to said tube in a compression direction;

an inertia valve comprising an inertia mass movable between a first position and a second position, said inertia mass being within said reservoir fluid chamber and not within said compression fluid chamber or said rebound fluid chamber, wherein said inertia mass does not surround said tube, said inertia mass configured to move in an axial direction generally aligned with said axis;

wherein, in said first position, said inertia mass blocks a flow of fluid through said fluid passage during movement of said piston in said compression direction, in a second position, said inertia mass permits a flow of fluid through said fluid passage during movement of said piston in said compression direction.

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SUMMARY OF INTERVIEW

Identification of Claims Discussed

Claim 1 was discussed during the interview.

Identification of Prior Art Discussed

U.S. Patent No. 4,572,317 to Isono et al., U.S. Patent No. 1,492,328 to Lang, U.S. Patent No. 3,127,958 to Szostak, U.S. Patent No. 5,285,875 to Munoz, U.S. Patent No. 5,823,305 to Richardson et al.

Proposed Amendments

It was proposed to amend Claim 1 to specify a location of the inertia mass relative to certain components of the damper, as indicated in amended Claim 1 in the present amendment.

Principal Arguments and Other Matters

Applicant's counsel argued that amended Claim 1 and new Claims 11, 16 and 21 are allowable over the prior art of record.

Results of Interview

The Examiner agreed that amended Claim 1 and new Claims 11, 16 and 21 would be allowable over the prior art of record.